# Investigation of Feasibility for Convenience Food Provisioning on Board C.G.S. "Cygnus"

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UNDER CONTRACT TO:

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Project Officers: C. Sinnott and L. Proctor

June 1977

Fisheries & Marine Service
Industry Report No. 92

Fisheries and Environment Canada
Fisheries and Marine Service

Pêches et Environnement Canada
Service des pêches et de la mer

Fisheries and Marine Service

Industry Report 92

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This is the first Industry Report from the

Technology Branch, Halifax, Nova Scotia

## PREFACE

Present methods of provisioning involve providing a stock of fresh foods (to be prepared at once or frozen on board for later use) from which meals are assembled. Perishable foods are obtained as available and are thus subject to variations in cost and quality. Problems which may arise are outlined below.

a) Freezer burn may result from inadequate packaging.

b) Due to the shape of packages and space available, difficulties arise in the storage of food and basic ingredients in bulk form.

c) The absence of expiry date stamping creates difficulties in stock rotation, hampers inventory control and results in overstocking.

d) The quality of the meals served totally reflects the skill of the cook.

e) Rough sea conditions drastically limit the variety of foods that can be served and increase the wastage due to the food ruined during preparation.

f) Space and equipment restriction of the ship's galley limit the variety of foods that can be served.

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## ABSTRACT

Schmid, C.H. and J. Meyer. 1977. Investigation of feasibility for convenience food provisioning on board C.G.S. "Cygnus". Fish. Mar. Serv. Ind. Rep. 92, 14 p.

An investigation to determine the acceptability of convenience food catering was undertaken aboard the Fisheries Conservation and Protection vessel, C.G.S. Cygnus. An eight-day lunch and dinner menu for the crew of 24 was drawn up for the trial period February 26 to March 6, 1977. Foods were supplied by Foremost Foods Inc., a company which only handles top quality convenience foods from federally inspected plants. Individual evaluations obtained from the crew after each meal and at the conclusion of the trip indicated that the convenience food provisioning is feasible. The advantages of convenience food provisioning are lower food costs, better inventory control, reduction in storage space requirements, less spoilage and wastage, and the capability to produce full course meals regardless of weather conditions. Convenience food provisioning was incorporated in the trial by the ship's cooks using the existing galley equipment. Convenience food catering reduces the duties of the cook and is less dependent on the skill of the cook than conventional methods.



Key Words: Catering, convenience, vessels



## RESUME

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Une étude visant à déterminer s'il serait bon d'adopter un système d'approvisionnement en aliments cuisinés a été entreprise à bord du bateau de Conservation et de Protection des Pêches, le C.G.S. Cygnus. On a dressé un menu des dîners et des soupers offerts aux 24 membres de l'équipage pour une période d'essai de huit jours, soit du 26 février au 6 mars. À cette fin, on a fait appel aux services de pourvoyeur de la Foremost Foods Inc., société qui ne fabrique que des plats cuisinés de première qualité provenant d'usines soumises à l'inspection fédérale. Les commentaires recueillis auprès des membres de l'équipage après chaque repas et à la fin de l'expédition attestent la possibilité d'adopter ce système d'approvisionnement. Entre autres avantages, la consommation d'aliments cuisinés permet de réduire le coût de la nourriture, de mieux contrôler les stocks, de réduire l'espace de rangement nécessaire, d'éviter le gaspillage d'aliments et, en outre, d'offrir des repas complets indépendamment des conditions du temps. Pour cette expérience, les cuisiniers du bateau ont utilisé le matériel ordinaire dont ils disposent dans les cuisines. Par ailleurs, l'approvisionnement en aliments cuisinés allège la tâche du cuisinier et requiert moins de talent que la cuisine conventionnelle.



Mots clés: pourvoyeur, cuisinés, bateaux

## INTRODUCTION

This investigation was undertaken to determine the acceptability of planned convenience food menus based on foods currently served on board the vessel selected for the project. The convenience food menus were chosen to provide:

a) consistently equal or improved quality meals,

b) nutritionally balanced meals, and

c) greater variety of provisioning at equal or reduced cost as compared to present provisioning.

## DEFINITIONS

In the context of this project, convenience foods are defined as any food prepared, to one degree or another, prior to the purchase. This would include:

a) frozen*, e.g. ready-to-cook vegetables,

b) refrigerated, e.g. pre-peeled potatoes,

c) portion-controlled, e.g. meats,

d) pre-cooked, frozen, main dishes, e.g. cabbage rolls, roast beef,

e) canned, e.g. fruits,

f) instant, e.g. puddings,

g) pre-cooked, frozen, desserts, e.g. pies and cakes, and

h) dehydrated, e.g. scalloped potatoes.

* Fast frozen under ideal conditions.

PROJECT PROGRAM

## Vessel

Permission was given by Conservation and Protection Division to use the C.G.S. Cygnus, which carries a crew of 24, for the project from February 26 to March 6, 1977.

## Menu

An eight-day convenience food lunch and dinner menu was compiled based on information obtained from discussion with the ship's cook and fisheries personnel and a sample five-day menu supplied by the cook. Breakfast was not included in this menu since this meal can be adjusted to a greater degree of convenience without foreseeable problems.

All the food included in the menu was supplied by Foremost Foods Inc. to avoid interference with provisions on board and to simplify costing of the eight-day menu.

The menu was prepared by Foremost Foods Inc. food service technician and Fisheries and Marine Service consumer consultant to provide nutritionally balanced meals featuring a wide variety of convenience foods. The eight-day menu is outlined in Appendix I.

## Evaluation

The crew was requested to fill out a questionnaire after each meal evaluating the meal specifically by the individual conponents, for example: soup, meat, etc. A copy of the questionnaire is included as Appendix II.

At the conclusion of the eight-day voyage, the crew completed an additional questionnaire to evaluate the overall menu. (A copy of this questionnaire is included as Appendix III.)

## Food Service Technician

A food service technician, Mr. C. Schmid, was on board for the duration of the eight-day voyage to advise on the cooking of the convenience foods. The actual cooking was carried out by the ship's cooks.

## Microwave Oven

A microwave oven was provided by Foremost Foods Inc. and guidance given on its uses with convenience foods.

RESULTS

Questionnaires

The results of the after-meal questionnaires are summarized in Table 1. (Only 75% of the questionnaires issued were returned because some crew members would skip meals when on shift duty.)

TABLE 1

SUMMARY OF RESULTS OF AFTER-MEAL QUESTIONNAIRES

| MEAL COMPONENT | PERCENTAGE OF CREW MEMBERS CHECKING EACH CATEGORY | | |
|---|---|---|---|
| | VERY GOOD | GOOD | DISLIKED |
| SOUPS | 27.6 | 70.8 | 1.6 |
| MEATS | 26.4 | 61.4 | 12.2 |
| POTATO, RICE OR PASTA | 21.0 | 60.8 | 18.2 |
| VEGETABLES | 22.8 | 72.4 | 4.8 |
| SALADS | 28.8 | 68.7 | 2.5 |
| DESSERTS | 27.6 | 66.5 | 5.9 |
| AVERAGE RESPONSE OVER ALL COMPONENTS | 25.7 | 65.8 | 8.6 |

The results of the overall evaluation are shown in Table 2. These results are based on 92% of the questionnaires issued.

TABLE 2

SUMMARY OF RESULTS OF OVERALL QUESTIONNAIRES

| EVALUATION OF MENU | PERCENTAGE OF CREW CHECKING EACH CATEGORY |
|---|---|
| VERY GOOD | 31.8 |
| GOOD | 40.9 |
| FAIR | 27.3 |
| POOR | 0.0 |

## Menu

The menu, as planned, was satisfactory in terms of the meal variety it provided, and portions were of sufficient quantity.

Pre-prepared salads, scalloped potatoes and all frozen desserts appeared to be well liked.

Instant mashed potatoes were not well received. This is discussed more fully under Observations - 3.

## Snacking

Snacking was shown to be an important consideration in the eating habits of the crew. Food not consumed at meal times was eaten later as snacks. The specified snack foods brought on board were not consumed.

## Purchasing

Purchases for this trial were greater than required due to inaccurate portion size estimates. Subsequent purchases could therefore be made more accurately.

## Storage

Storage space requirements for convenience food items were shown to be considerably less than those required for conventional foodstuffs.

Due to the packaging method used for convenience foods, these items could be stacked in menu sequence for easy access. The stacking method allowed the expiry date stamping to be visible for proper stock rotation.

## Preparation

It was shown that a full meal for 24 crew members could be served in an overall time of two hours.

Additionally, complete meals could be served regardless of the weather conditions. Because initial preparation steps are eliminated by convenience foods, the cooking of a meal is less hazardous, particularly in rough weather.

## Wastage

Wastage was reduced with convenience foods because processes such as cleaning, peeling, pre-cutting and trimming are eliminated.

## Microwave Oven

The microwave oven was used predominantly for snacks and desserts.

The food provided on this trip was not designed for maximum use of the microwave oven.

## Food Costs

Due to small quantities involved in this test, all foods could not be supplied at wholesale prices. Therefore, actual costs plus the adjusted costs are shown in Table 3. All convenience foods supplied are quality and government inspected.

TABLE 3

FOOD COSTS*

| | Food** as Supplied | Food*** at Wholesale |
|---|---|---|
| Total price for all food supplies | $1,374.20 | $1,324.20 |
| Total cost of closing inventory | 615.07 | 615.07 |
| Total cost of lunches, dinner, and snacks | 759.13 | 709.13 |
| Cost per man per day (breakfast excluded) | 3.80 | 3.55 |
| Cost per man per day (breakfast included at $0.60 per man) | 4.40 | 4.15 |

* Costing is based on feeding 24 crew members and 1 food technician for a period of 8 full days.

** Combination wholesale and retail prices.

*** Food costs adjusted to wholesale prices.

## OBSERVATIONS

1. The galley equipment generally does not lend itself to ease of cooking, e.g. the oven contains only one shelf.

2. Fresh baked bread could have been provided from frozen dough but was not made on the specific recommendation of the cook.

3. Instant mashed potatoes were not accepted by the crew. This was due possibly to the unfamiliarity of the cook with this product and the food service technician being unable to give guidance due to his indisposition. It was significant that the frozen vegetables, at this meal, were also rated poor.

4. One segment of the crew appeared to be opposed to this program and consistently rated the products low on the scale; similarity was always shown in the comments of this group. As examples:

   a) pie was rated poor because it was served hot.

   b) raisin pie received a poor rating from one of this segment despite his having eaten four helpings.

   c) one individual rated potatoes and vegetables fair although he never ate them.

   In general, however, comments and ratings appeared to be honest.

5. At the outset of the trip, the crew was apprehensive because they had not received any information about the program and assumed that they would be served TV dinners. These difficulties were eventually corrected through personal contact by the food service technician with the individual crew members. Thus the full cooperation of the crew in the project was achieved.

6. The planned menu was able to be followed despite the adverse weather conditions encountered.

## CONCLUSIONS

This trial showed that convenience provisioning on board the C.G.S. Cygnus is feasible and advantageous.

Convenience foods should be introduced gradually with full knowledge of the crew. For maximum benefit, a training program (2 to 3 days) should be given to cooks prior to introduction of convenience foods.

Additional benefits shown to accrue from convenience food provisioning are:

1. lower food costs,
2. reduction in storage space requirement,
3. less spoilage and wastage, and
4. the capability to produce full-course meals in bad weather.

Nutritionally balanced meals can be provided by planned menus. The wide variety of convenience foods allows the use of cycle menus which can be drawn up for long periods without predictably repeating specific food items.

Tighter control of ordering and daily cost records are simplified when based on comprehensive menus. Appendix IV shows a sample daily menu order and cost control form.

# APPENDIX I

## CONVENIENCE FOOD MENU SERVED FEBRUARY 26 TO MARCH 6, 1977

## ON BOARD C.G.S. CYGNUS

| | SATURDAY<br>February 26 | SUNDAY<br>February 27 |
|---|---|---|
| LUNCH | a) Minestrone<br>b) Beef Stew & Vegetables<br>d) Minute Rice<br>h) Tossed Salad<br>f) Chocolate Layer Cake | a) Beef Barley Soup<br>b) Fish Cakes<br>e) French Fries<br>a) Hot Beets<br>h) Vegetable Salad<br>f) Peach Pie |
| DINNER | a) Soup of the Day<br>b) Veal Cutlet Tom. Sauce<br>e) Parsley Potatoes<br>f) Corn Niblets<br>h) Cole Slaw<br>c) Pears-Helene | a) Soup of the Day<br>b) Liver & Onions<br>g) Scallop Potatoes<br>f) Cauliflower<br>f) Mixed Vegetables<br>f) Jelly Roll/Vanilla Sauce |

| | MONDAY<br>February 28 | TUESDAY<br>March 1 |
|---|---|---|
| LUNCH | a) Chicken Noodle Soup<br>b) Cabbage Rolls<br>d) Mashed Potatoes<br>f) Diced Carrots<br>h) Tossed Salad<br>f) German Chocolate Cake | a) Scotch Broth<br>b) Roast Beef<br>e) Roast Potatoes<br>f) Mixed Vegetables<br>h) Cole Slaw<br>b) Deep Dish Apple Pie |
| DINNER | a) Soup of the Day<br>b) BBQ Chicken Breast & Legs<br>e) French Fries<br>f) Brussel Sprouts<br>h) Cole Slaw<br>h) Rice Pudding | a) Soup of the Day<br>b) Macaroni & Beef<br>h) Peas<br>h) Potato Salad<br>f) Chocolate Brownies |

Key to convenience aspect of products:

a) Canned
b) Precooked & Frozen
c) Portion Controlled
d) Instant
e) Peeled & Refrigerated
f) Frozen
g) Dehydrated
h) Ready Prepared & Refrigerated

| | WEDNESDAY<br>March 2 | THURSDAY<br>March 3 |
|---|---|---|
| LUNCH | a) Clam Chowder<br>b) Meat Pie (Tourtiere)<br>f) French Fries<br>h) Vegetable Salad<br>f) French Crumb Cake | a) Cream of Mushroom Soup<br>b) Chicken Cacciatore<br>g) Hashed Brown Potatoes<br>f) Whole Carrots<br>h) Chef Salad<br>f) Banana Cake |
| DINNER | a) Soup of the Day<br>c) T-Bone Steak<br>d) Mashed Potatoes<br>f) Peas & Carrots<br>h) Cole Slaw<br>f) Ice Cream | a) Soup of the Day<br>g) Spaghetti &<br>b) Meat Balls<br>d) Mashed Potatoes<br>a) Hot Beets<br>h) Vegetable Salad<br>b) Raisin Pie |

| | FRIDAY<br>March 4 | SATURDAY<br>March 5 |
|---|---|---|
| LUNCH | a) Cream of Tomato Soup<br>c) Pork Chops & Apple Sauce<br>g) Scallop Potatoes<br>f) Green Beans<br>h) Tossed Salad<br>b) Blueberry Pie | a) Green Pea Soup<br>b) Swiss Steak & Gravy<br>d) Mashed Potatoes<br>f) Corn Niblets<br>h) Vegetable Salad<br>f) Pumpkin Pie |
| DINNER | a) Soup of the Day<br>b) Salisbury Steak & Onions<br>e) Roast Potatoes<br>f) Lima Beans<br>h) Chef Salad<br>f) Cherry Cheese Cake | a) Soup of the Day<br>b) Salmon Pie<br>f) French Fries<br>f) Mixed Vegetables<br>h) Tossed Salad<br>b) Ice Cream |

## APPENDIX II

### AFTER-MEAL QUESTIONNAIRE

Dear Crew Members:

To improve the quality and variety of food served, we would appreciate your personal judgement of the meal you just received.

| | Very Good | Good | Disliked | (Please Comment) |
|---|---|---|---|---|
| Soup | ☐ | ☐ | ☐ | |
| Meat | ☐ | ☐ | ☐ | |
| Potato | ☐ | ☐ | ☐ | |
| Vegetable | ☐ | ☐ | ☐ | |
| Salad | ☐ | ☐ | ☐ | |
| Dessert | ☐ | ☐ | ☐ | |

COMMENTS:

## APPENDIX III

### OVERALL QUESTIONNAIRE

The food you received on this trip, did you think it was:

Very Good ☐

Good ☐

Fair ☐

Poor ☐

PLEASE COMMENT:

## APPENDIX IV

### SAMPLE DAILY MENU ORDER & COST CONTROL SHEET

| MENU | STOCK ON HAND | ITEMS USED | ITEMS CARRIED OVER | RE-ORDER | COST PER UNIT | FOOD COST |
|---|---|---|---|---|---|---|
| | | | | | | |
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